

**ABSTRACT**

The present invention includes a method and apparatus for storing data. Accordingly, a first aspect of the present invention is a data storage device. The data storage device includes a conduction barrier, a probe tip mounted on a suspension mechanism, a voltage source coupled to the suspension mechanism for emitting a current of electrons through the conduction barrier, a sensing mechanism for sensing a magnitude of the emitted current wherein the magnitude of the current of electrons emitted through the conduction barrier is based on a distance between the probe tip and the sensing mechanism.